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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/637,407

08/07/2003

Masaki Aoshima

890050.436

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7590

02/04/2009

SEED INTELLECTUAL PROPERTY LAW GROUP PLLC

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/637,407	Applicant(s) AOSHIMA ET AL.	
	Examiner Martin J. Angebrannt	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7, 13 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7, 13 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments are presented after the first rejection to which they are directed.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-7,13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 and Kinoshita et al. JP 2000-285509 (machine translation provided), in view of Morimoto et al. '345, further in view of Fukano et al. '073.

Kobayashi et al. JP 62-204442 teaches an optical recording media comprising a recording layer consisting of at least two kinds of phase-change films having different composition wherein the first recording layer is of Si ,Te, or the like and the second recording material is Au, Ag, Ge or the like. When the materials are recorded, the recording layers are alloyed. Recording layers (41, 42) are provided between dielectric layers (3, 5) wherein a protective layer (6) is opposite the substrate (2). With regard to the Applicants' capabilities of properties under specific irradiation, it is the Examiner's assertion is that the same compounds will react the same way (or similarly) under the same circumstances and thus the materials of Kobayashi anticipate these irradiations. While these properties are not specified in the English language abstract, it is further the Examiner's assertion that it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the materials under near-field conditions, thereby satisfying these requirements. Examiner notes that with regard to claims 9-10 the additional dielectric

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layer furthest from the substrate acts as a “protective layer” as the dielectric layer can act as a barrier from damage from oxygen, mechanical contact and the like (further teaching found in example 4). The bilayer is 100 nm thick, the lower and upper dielectric layers are silicon dioxide and 100 nm thick. (example 4). The recording bilayers can be Si/Au, Si/Ag or Te/Ge

Kinoshita et al. JP 2000-285509 teach an alloying recording medium comprising a substrate, a partially reflective layer (2), a dielectric layer (3), a recording bilayer (104,105), a second dielectric layer (5). The first recording layer can be Au, Ag, Cu, Pt, Pd, Sb, Te, In, Sn, Zn or the like [0005,0015]. The second recording layer is Ge [0015].

Morimoto et al. ‘345 teaches that the reflective layer may be on the same side of the recording film as the substrate if topside recording is to be used and on the opposite side of the recording films from the substrate if the recording is to take place through the substrate (6:42-65). The dielectric layers are disclosed as providing improvements in the stability and sensitivity of the overall device (7:42-8:12). The prevention of direct contact with the recording layer is further disclosed (7:1-10). The thickness of the dielectric layers may be 10 to 500 nm (7/51-8/12).

Fukano et al. ‘860 teach the use of carbon barrier layers between alloying/reaction recording bilayers (2/30-40, 3/5-20).

It would have been obvious to modify the medium exemplified by Kobayashi et al. JP 62-204442 using a Te/Ge recording bilayer and discussed with respect to structure shown in figure 2 by replacing the Te with Sn to form a Sn/Ge bilayer based upon the disclosure of equivalence by Kinoshita et al. JP 2000-285509 in forming alloying bilayers with Ge with a reasonable expectation of forming a useful optical recording medium. Alternatively, it would have been

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obvious to modify the media exemplified with respect to figure 1 by replacing the Au or Ag with Sn based upon the disclosure of equivalence at [0005] and to add a polymeric protective layer as taught by Kobayashi et al. JP 62-204442 atop the dielectric layer with a reasonable expectation of providing further protection for the recording medium and to modify the resulting medium by adding a reflective layer as taught by Kinoshita et al. JP 2000-285509 (machine translation provided) and Morimoto et al. '345 to allow reflective readout of the medium and adding a carbon interlayer as taught by Fukano et al. '860 with a reasonable expectation of forming a useful alloying optical recording medium with increased stability.

The arguments of the applicant fail to account for the carbon (C) interlayer taught by Fukano et al. '073 and the broad 'comprising' language of the claims which would allow for the recording medium to include layers other than those recited. The rejection is based upon a trilayer recording composite including a layer of either Si or Ge, a carbon layer and a metal layer. The recording process will necessarily include the mixing the carbon layer with the other layers in the resultant mark area.

4. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 or Rii et al. JP 58-220794), in view of Wilkinson '261 and Fukano et al. '073.

Rii et al. JP 58-220794 teach recording bilayers of Ge or Si with Al, Ag, Au, Sn, where these are mixed. The use of a protective layer is shown in figure 30 and silicon dioxide is disclosed in the examples.

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Wilkinson et al. '261 teaches the use of a laser to melt an Al metal layer to form a recorded area.(2/28-48). The use of a HeCd laser is disclosed. (6/12-30). The thickness of the overlayers are optimized to maximize laser wavelength absorption.

It would have been obvious to one skilled in the art to modify the process of recording used by either of (Kobayashi et al. JP 62-204442 or Rii et al. JP 58-220794) for media including a bilayer recording composite including a layer of Ge or Si with an Al layer by using other laser wavelengths which are old and well known for their use with inorganic bilayer optical recording media, Such as the 442 nm emission of the HeCd laser Wilkinson et al. '261 of with a reasonable expectation of successfully recording in the alloying bilayers and adding a carbon interlayer as taught by Fukano et al. '860 with a reasonable expectation of forming a useful alloying optical recording medium.

The arguments of the applicant fail to account for the carbon (C) interlayer taught by Fukano et al. '073 and the broad 'comprising' language of the claims which would allow for the recording medium to include layers other than those recited. The rejection is based upon a trilayer recording composite including a layer of either Si or Ge, a carbon layer and a metal layer. The recording process will necessarily include the mixing the carbon layer with the other layers in the resultant mark area.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795

Martin J Angebranndt

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02/2/2009